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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/622,614      | 07/21/2003  | Kenichi Watanabe     | 030877              | 2630             |

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EXAMINER

WILLIAMS, ALEXANDER O

ART UNIT PAPER NUMBER

2826

DATE MAILED: 07/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/622,614

Applicant(s)

WATANABE, KENICHI

Examiner

Alexander O. Williams

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 12 May 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1, 12, 22, 24, 26, 28, 31, 34, 37 and 42-51 is/are pending in the application.
- 4a) Of the above claim(s) 2-7, 9, 11, 13-19, 21, 23, 25, 27, 29, 30, 32, 33, 35, 36 and 38-41 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 12, 22, 24, 26, 28, 31, 34, 37 and 42-51 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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Serial Number: 10/622614 Attorney's Docket #: 030877

Filing Date: 7/21/03; claimed foreign priority to 7/31/2002

Applicant: Watanabe

Examiner: Alexander Williams

Applicant's RCE filed 12/8/05 has been acknowledged.

Applicant's Amendment filed 5/12/06 to the election of Species of figure 4 (claims 1, 8, 10, 12, 20, 22, 24, 26, 28, 31, 34 and 37), filed 5/6/04, has been acknowledged. Claim 1 is found to be generic to these claims. Claims 45-51 have been added. In this application serial number, the Examiner is still examining the elected species of figure 4, with claims drawn to this elected species. All other claims drawn to any other species should be listed withdrawn at this time. Otherwise, 35 U.S.C. § 112, second paragraph rejection and/or drawing objections may occur.

This application contains claims 2-7, 9, 11, 13-19, 21, 23, 25, 27, 29, 30, 32, 33, 35, 36 and 38-41 drawn to an invention non-elected without traverse.

Claims 8, 10 and 20 have been cancelled.

Note: In reviewing Applicant's species of figure 4, show is the claimed structure further shown in this elected species?

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the claim language in claims 1, 12, 24, 26, 28, 31, 34, 37, 42-45 and 49-51 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate

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prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claims 1, 12, 24, 26, 28, 31, 34, 37, 42-45 and 49-51 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1 and 12, it is unclear and confusing to what shows and how the elected species show the claimed structure of "a second buried conductor in a hole shaped via hole formed in the second insulating film on the first interconnection, a width of the groove-shaped via hole being 20 – 140% of a width of the hole shaped via hole." Where and how is this shown in the elected species of figure 4?

In claim 22, it is unclear and confusing to what is meant by "a conducting layer buried in a surface side of a **substrate the conducting layer** having a pattern which is bent at a right angle." It appears a comma "," should be inserted after "substrate."

In claims 37 and 42, it is unclear and confusing to what is meant by "wherein the first insulating film is a layer film of a silicon nitride film and a silicon film." How is this a

layer of SiN/SiO? Where is this detailed in the specification and drawing in the drawings? Should this be "at least one of" or does this film actually consist of both claimed films? Please explain. Note: Withdrawn claims 34-36 and 39 carry the same problems.

In claim 43, it is unclear and confusing to what is meant by "wherein the first insulating film is a layer film of a SiC film and a SiOC film." How is this a layer of SiC/SiOC? Where is this detailed in the specification and drawing in the drawings? Should this be "at least one of" or does this film actually consist of both claimed films? Please explain.

In claim 45, it is unclear and confusing to what shows and how the elected species show the claimed structure of "a second buried conductor in a hole shaped via hole formed in the second insulating film, a width of the groove-shaped via hole being not more than a width of the hole shaped via hole." Where and how is this shown in the elected species of figure 4?

In claim 50, "the first buried conductor and the second buried conductor are formed of a conductor mainly formed of tungsten" lacks proper antecedent basis depending from claim 22. Claims 12 discusses "a conducting layer buried in a surface of a substrate" and "a buried conductor filled in the groove-shaped via hole." Which is which?

Any of claims 1, 12, 22, 24, 26, 28, 31, 34, 37, 42-45 and 49-51 not specifically addressed above are rejected as being dependent on one or more of the claims which have been specifically objected to above.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 22 and 50 are rejected under 35 U.S.C. § 102(b) as being anticipated by Kazuhiko (Japan Patent # 2000-269219).

1. For example, similar claim 22, Kazuhiko (figures 1 to 12) specifically figures 1, 2 and 10 show a semiconductor device comprising: a first insulating film **40A** formed over a substrate; a first interconnection **45Sub(1b)** buried in at least a surface side of the first insulating film, the first interconnection having a pattern which is bent at a right angle; a second insulating film **41E** formed on the first insulating film with the first interconnection buried in, and including a groove-shaped via hole **25B** formed in a region above the first interconnection, the groove-shaped via-hole having a pattern which is formed along an extending direction of the first interconnection and is bent at a right angle; and a first buried conductor filled **25C** in the groove-shaped via-hole.

Claims 22 and 50 are rejected under 35 U.S.C. § 102(e) as being anticipated by Kazumi (Japan Patent # 2003-86590).

1. For example, similar claim 22, Kazumi (figures 1a to 8B) specifically figures 1, 2 and 4 show a semiconductor device comprising: a first insulating film **10** formed over a

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substrate **1**; a first interconnection **22,19,15,11** buried in at least a surface side of the first insulating film, the first interconnection having a pattern which is bent at a right angle; a second insulating film **13** formed on the first insulating film with the first interconnection buried in, and including a groove-shaped via hole **30** formed in a region above the first interconnection, the groove-shaped via-hole having a pattern which is formed along an extending direction of the first interconnection and is bent at a right angle; and a first buried conductor filled **22,19,15,11** in the groove-shaped via-hole.

## Response

Applicant's arguments filed 5/12/06 have been fully considered, but are moot in view of the new grounds of rejections detailed above. Applicant's arguments on pages 15-18 does not apply to claims related to claim 22 because it was not amendment.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a second buried conductor) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

| Field of Search   | Date                           |
|---|--------------------------------|
| U.S. Class and subclass:<br>257/758,776,775,700,701,751,753,774,762,763,765,767<br>438/629,619,622                                  | 7/24/04<br>12/12/05<br>7/21/06 |
| Other Documentation:<br>foreign patents and literature in<br>257/758,776,775,700,701,751,753,774,762,763,765,767<br>438/629,619,622 | 7/24/04<br>12/12/05<br>7/21/06 |
| Electronic data base(s):<br>U.S. Patents EAST   | 7/24/04<br>7/21/06             |

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander O Williams whose telephone number is (571) 272 1924. The examiner can normally be reached on M-F 6:30-7:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272 1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AOW  
7/22/06



Primary Patent Examiner  
Alexander O. Williams